REMARKS/ARGUMENTS

Claims 1 and 6 were rejected under §102 as being anticipated by Aylor et al. Aylor discloses a dryer for drying freshly printed substrates in a printing press. Claim 1 requires an array of IR emitters placed in spaced relation to the paper web. Aylor discloses the use of a single IR lamp 30 (column 3, line 37 "an elongated infrared lamp 30"). The single lamp is disclosed as having only two infrared bulbs (column 3, line 41). Aylor is further deficient with respect to disclosing the claimed "at least one of the lamp or protection plate and the array of IR emitters is curved . . .", as required in Claim 1. Claim 1 also requires that the lamp protection plate be located intermediate the IR emitters and the paper web. The nearest structure disclosed in Aylor corresponding to the claimed lamp protection plate is the "loosely mounted quartz lens 58", as shown in Figs. 5 and 6. This lens is simply a planar configuration of a quartz lens. The deficiencies of the prior art as clearly explained in the present application with respect to use of a planer lamp or protection element is all that is disclosed in Aylor. There is no teaching or suggestion to modify the lens 58 in Aylor to make it curve shaped. Therefore Aylor is at least deficient with respect to disclosing the claimed array of IR emitters, as well as at least one of the lamp protection plate and the array of IR emitters being curved. The only curved structure illustrated in Aylor is the curved wall 25, reflectors 36 and 28. However, as mentioned above, the quartz lens 58 in Aylor is not curved. Claim 6 depends from Claim 1. Therefore, this rejection under §102 should be withdrawn.

Claims 7-10 were rejected under §102 as being anticipated by Hamrin. Independent Claim 7 requires a lamp or protection plate comprising a plurality of quartz tubes arranged in an array. In the Hamrin reference, the nearest equivalent structure found therein is the overlapping glass plates 9 located within the grooves 10. As shown in Fig. 1 of Hamrin and as explained on page 4 thereof, glass holders 8 are mounted below the mounting means 5 and support glass plates 9 are inserted into grooves 10. The lower holder part 11 along with the glass plates 9 extend in a plane parallel to and at a distance above the passing paper web 12. The glass plates 9 of Hamrin are simply not a plurality of quartz tubes as claimed in Claim 7, and there is no other structure in

Hamrin that corresponds to the claimed lamp protection plate. Claims 8-10 depend from Claim 7. Therefore, this rejection under §102 should be withdrawn.

Claims 11-14 were rejected under §102 as being anticipated by Cojafex. This reference discloses a method of bending elongated objects. The bending is achieved by "having the heating zone arranged in a specific place and/or direction with respect to the center of the bending curvature in which the tube is bent" (lines 75-79). As further explained in the reference, "a longitudinal force is applied to push the object progressively past guide means" (page 1, lines 84-87). Claim 11 has been amended to further recite that moving of the uppermost end of the tube is achieved by pulling the uppermost end. Therefore, this reference discloses exactly opposite of what the method is claimed in Claim 11: Cojafex requires pushing the object to be bent, while in the present invention, the object to be bent is pulled. Cojafex would certainly have to be completely reconstructed in order to disclose a method whereby a pulling force was used to move the object to be bent. Furthermore, the use of a pushing force has a number of disadvantages as outlined on page 6 of the present application regarding "slumping" of the glass tube whose softening point is close to its melting point. Although the bending arm 5 of Cojafex is rotatable about point 1, there is nothing to suggest that a pulling force could be used in Cojafex to anticipate the method of Claim 11. Furthermore, it appears that the bending arm 5 of Cojafex is simply used to guide the path of the uppermost end of the tube in an arc. In the present invention, bending is achieved by applying a pulling force to the uppermost end of the tube. At the same time, the lowermost end of the tube is supported and guided to move in a vertical path. Both the pulling force at the uppermost end and the support/guiding at the lowermost end avoid problems in slumping that specifically arise from bending a glass tube, as opposed to metal or other material that does not experience slumping. Claims 12-14 depend from Claim 11. Therefore, this rejection under §102 should be withdrawn.

Claims 15-19 and 22 were rejected under §102 as being anticipated by Khachatryan. Claim 15 has been further amended to recite that the support means includes a follower attached to a lowermost end of the tube. As shown in the preferred embodiment at Fig. 5, and as explained in the application as page 11, lines 21-33, the follower is secured to the lowermost end

of the tube to be bent, and the follower is constrained to move only vertically along track 18. The Khachatryan reference shows a tube supported in a substantially horizontal orientation. There is no teaching or suggesting in Khachatryan to modify the device disclosed therein to provide means for supporting the tube in a substantially vertical orientation. There is absolutely no structure shown in this reference for supporting the tube in a substantially vertical orientation, and there is clearly no follower attached to a lower most end of the tube. As shown in the figure of Khachatryan, the lower most end of the tube is not supported by any structure, and simply hangs over the lever 5. Claims 16-19 and 22 depend from Claim 15. Therefore, this rejection under §102 should be withdrawn.

Claims 29 and 30 were rejected under §102 as being anticipated by Zellerman. Claim 29 has been amended to further recite that the dryer is especially adapted to drying a continuous web of paper, a drying cylinder for moving the web of paper, and a lamp protection element comprising a plurality of a curved quartz tubes. First, it is asserted that Zellerman does not disclose a reference within the technical field of the present invention and Zellerman is non-analogous prior art. Even if Zellerman could be considered analogous prior art, Claim 29 provides for a number of features not remotely disclosed in Zellerman. First, Zellerman does not disclose the claimed array of curved lamps, each of which include an infrared heating element located within a quartz tube. As shown in Figs. 2 and 3 of the Zellerman reference, the lamps therein simply have the configuration of ordinary light bulbs. These light bulbs cannot be fairly interpreted as corresponding to curved quartz tubes. Furthermore, Zellerman is clearly deficient in disclosing any element corresponding to a drying cylinder or a lamp protection element comprising a plurality of quartz tubes. Therefore, this rejection under §102 should be withdrawn.

Claim 31 was rejected under §102 as being anticipated by Hollman et al. Claim 31 has been cancelled; therefore, this rejection is moot.

Claims 2-4 were rejected under §103 as being unpatentable over Aylor in view of Zellerman. Zellerman clearly fails to cure the deficiencies in Aylor. Therefore, even if the bulbous shape of the light bulbs in Zellerman could be construed to disclose the claimed curved quartz tubes, Claims 2-4 should be allowed. Also, Applicant traverses the Examiner's

combination of these references asserting that it would not be obvious to one skilled in the art to combine the teachings of Aylor with the teachings of Zellerman for the purpose of allowing an object to be dried that is of a curved surface. It is noted, particularly in Zellerman, that the lamps 38 are provided in a planer configuration by attachment of the lamps to the plate 46. Furthermore, the protective screen 48 is also provided in a planer arrangement. The bulbous shape of the light bulbs in Zellerman has no bearing or relationship as to providing motivation for drying a curved surface, and the actual arrangement in Zellerman is to provide a planer shaped drying assembly. Therefore, this rejection under §103 should be withdrawn.

Claims 20-21 were rejected under §103 as being unpatentable over Khachatryan in view of Katz. Claim 20 recites that the claimed barrier means comprises a wheel. The barrier means recited in Claim 19 further requires a curved surface against which the tube abuts so as to prevent lateral movement of the two. Khachatryan and Katz clearly fail to disclose the claimed barrier means of any type wherein the barrier means has a curved surface against which the tube abuts so as to prevent lateral movement of the tube. It is unclear as to which structure in Katz the Examiner refers to as disclosing the claimed wheel of Claim 20. At column 3, lines 35-62, a material carrying wheel is referenced. However, this wheel has no bearing or relationship for providing a barrier for passage of a tube that is being bent, and rather the Katz reference in general relates to provision of a restricted passage dryer wherein various restricted passages are used to effect a desired level of drying. Therefore, this rejection under §103 should be withdrawn.

Claims 23-26 were rejected under §103 as being unpatentable over Khachatryan in view of Cojafex. Cojafex clearly fails to cure the deficiencies in Khachatryan. Furthermore, since the Khachatryan reference only discloses bending of a tube in a horizontal orientation while the Cojafex reference manipulates bending through a vertical orientation, it is unclear how these references can be combined in any way to obviate the subject matter of Claims 23-26. The Khachatryan reference would clearly have to be completely reconstructed in order to adopt any of the structural features from Cojafex. Movement of the tube in Khachatryan occurs horizontally

and linearly, while movement in the Cojafex reference move vertically and then bending through an arc pattern. Therefore, this rejection under §103 should be withdrawn.

Claims 32-34 have been added to further claim the present invention. With respect to independent Claim 32, the prior art of record does not disclose either alone or in combination the claimed drying cylinder, array of IR emitters, and the reflector plate. Claim 32 further requires that the array comprise a first plurality of curved quartz tubes and a corresponding plurality of curved infrared heating elements placed in the quartz tub. The curved orientation of the elements of the present invention provide a number of benefits, and the prior art simply fails to disclose these features in combination. Therefore, new Claims 32-34 should be allowed.

The application now appearing to be in form for allowance, early notification of same is respectfully requested. The Examiner is invited to contact the undersigned by telephone if doing so would expedite the resolution of this case.

Respectfully submitted,

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